S6: SVS Plenary Session VI

SS25.

The Influence of Contralateral Occlusion on Results of Carotid Interventions from the Society for Vascular Surgery (SVS) Vascular Registry™

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Objectives: Data on the influence of contralateral carotid occlusion (CCO) on carotid endarterectomy (CEA) are conflicting and are absent for carotid stenting (CAS). This study evaluated the influence of CCO on CEA and CAS.

Methods: We evaluated patients (pts) with and without CCO in the SVS Vascular Registry. Primary outcome was a composite of periprocedural death, stroke, or MI (MACE) and its individual components. Further analysis was done to identify the influence, if any of symptom status on outcomes.

Results: There were 1128 CAS and 666 CEA pts with CCO. CAS pts were more often symptomatic with a higher incidence of coronary artery disease, congestive heart failure, diabetes, COPD, and NYHA >3. Absolute risk of periprocedural MACE (2.75% CAS v. 4.20% CEA), death (1.06% CAS v. 0.75% CEA), stroke (2.13% CAS v 3.15% CEA), and MI (CAS 0.35% v 0.60% CEA) was statistically equivalent for both. This equivalence was maintained when pts with CCO were segregated by symptom status and after adjusting for perioprocedural risk. There were 16,646 pts without contralateral occlusion (NCO) (5698 CAS; 10,948 CEA). NCO pts with CEA have better outcomes in periprocedural MACE (1.76% NCO vs 4.20% CCO), and stroke (1.06% NCO vs 3.15% CCO) ($P < .0001$ for both). In CAS pts, CCO did not significantly affect periprocedural MACE (3.16% NCO vs 2.75% CCO), death (0.8% NCO vs 1.0% CCO), stroke (2.3% NCO vs 2.1% CCO) or MI (0.6% vs. NCO s 0.3% CCO). In CEA pts, CCO increased MACE, primarily by increasing stroke rates in both asymptomatic (0.68 % vs. 2.00%, $P = .0095$) and symptomatic (1.68% vs 4.89%, $P = .0012$) pts.

Conclusions: While CEA is preferred in NCO pts, regardless of symptom status, based on lower perioprocedural MACE, death and stroke, the benefit of CEA is lost in pts with CCO because of increased stroke rates in CCO pts after CEA but not CAS regardless of symptom status. The results of CAS and CEA in patients with CCO are equivalent and within acceptable AHA guidelines.

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SS26.

Improving Patient Selection for Carotid Endarterectomy in Asymptomatic Patients Based on Predicted Five-Year Survival

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Objectives: While carotid endarterectomy (CEA) is performed to prevent stroke, long-term survival is essential to ensure benefit, especially in asymptomatic patients. We examined patient factors associated with 5-year survival following CEA in patients with asymptomatic internal carotid artery (ICA) stenosis.

Methods: Prospectively collected data from 4,294 isolated CEAs performed for asymptomatic stenosis across 24 centers in the Vascular Study Group of New England (VSGNE) between 2003-2011 were used for this analysis. Mortality was determined from the Social Security Death Index. Cox proportional hazard models were used to identify risk factors for mortality within the first 5 years after CEA.

Results: Overall 5-year survival was 82%. In multivariate analysis, increasing strata of age, diabetes, smoking history, congestive heart failure (CHF), COPD, poor renal function (eGFR<60 or dialysis dependence), and degree of contralateral ICA stenosis were all associated with worse survival, while statin use predicted improved survival. Patients classified as low (52%), medium (36%) and high risk (12%) based on number of risk factors had 5-year survival rates of 93%, 85% and 57% respectively ($P < .001$, Fig).

Conclusions: More than four out of five asymptomatic patients selected for CEA in the VSGNE achieved 5-year survival, demonstrating appropriate patient selection in our region. However, there are patients with high risk profiles, based on the above risk factors, who are unlikely to survive long enough to realize a benefit of CEA for asymptomatic stenosis. Predicting survival is important for decision making in these patients.

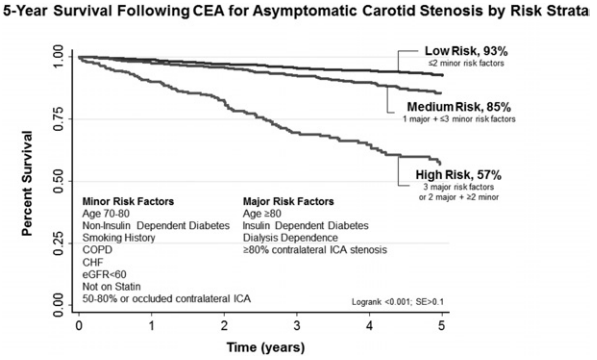

Fig.

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VS7.

Video Presentation

Complex Carotid Reconstruction: Left Subclavian to Carotid Bypass with Branched Grafts to the Left Vertebral and Carotid Arteries

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Background: Background: Complex cerebrovascular lesions require careful operative planning. We present a case of a 59 year-old male with a history of recent transient ischemic attack and right subclavian steal symptoms. Carotid duplex and CT angiography showed an aberrant left vertebral artery with critical origin stenosis, left common carotid artery (CCA) critical origin stenosis, and an occluded innominate artery extending to the right CCA bulb. This presented multiple therapeutic options including antegrade or retrograde endovascular stenting of the left CCA, with or without femoral to axillary bypass on the right to protect cerebral perfusion. We chose an alternate strategy made available by the normal left subclavian: a left subclavian to right carotid bypass, with branched grafts to the left CCA and left vertebral. No complications occurred. Follow up angiography demonstrated full-patency of the grafts and the patient has been without symptoms for greater than one year.

Technical Description: Technical Description: We begin with an outline of the anatomy and the options. We then present the operation, first with a left transverse supraclavicular incision through which the phrenic nerve is preserved and the left CCA, subclavian, and vertebral arteries are circumferentially controlled. Next, through a separate incision we expose and control the right carotid vessels. We then create a retroesophageal tunnel through which we pass a ringed 6 mm graft between the two incisions. Two short 6 mm branches are then sewn into place on the left side of the graft. These are occluded with hemoclips and we proceed with the left subclavian and right carotid anastamoses. Once antegrade right carotid flow is instituted, we then perform anastomoses of the graft branches to the left CCA and vertebral arteries, without interrupting flow to the right carotid. The hemoclips are then removed to restore flow through the left CCA and vertebral arteries. Pulsatile flow is confirmed and the wounds are closed.

Author Disclosures: R. Faizer: Nothing to disclose; **C. S. Hupp**: Nothing to disclose; **J. Quick**: Nothing to disclose.

SS27.

The Risk of Carotid Artery Stenting Compared with Carotid Endarterectomy Is Greatest in Patients Treated within Seven Days of Symptoms

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Objectives: Among patients with symptomatic carotid stenosis, carotid artery stenting (CAS) is associated with a higher risk of peri-procedural stroke or death than carotid endarterectomy (CEA). Uncertainty remains whether the balance of risks changes with time since the most recent ischemic event.

Methods: We investigated the association of time since the qualifying event (0-7 days, 8-14 days, and > 14 days after the qualifying event) with the risk of stroke or death within 30 days after CAS or CEA in a pooled analysis of data from individual patients randomised in the Endarterectomy vs Angioplasty in patients with Symptomatic Severe Carotid Stenosis trial (EVA-3S), the Stent-Protected Angioplasty versus Carotid Endarterectomy trial (SPACE), and the International Carotid Stenting Study (ICSS).

Results: Timing information was available for 2839 patients. In the first 30 days after intervention, any stroke or death occurred significantly more often in the CAS group (110 [7.7%] of 1434) compared to the CEA group (54 [3.8%] of 1405, crude risk ratio 2.0 [95% CI 1.5-2.7]. The timing of the intervention modified the treatment benefit: early treated CEA patients.

Conclusions: The increase in risk of CAS compared with CEA appears greatest in patients treated within 7 days of symptoms. This effect is also apparent independent of age.

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SS28.

The Size of Juxtaluminal Black Area in Ultrasonic Images of Asymptomatic Carotid Plaques Predicts the Occurrence of Stroke

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Objectives: It has been suggested that a juxtaluminal black (hypoechoic) area (JBA) in ultrasonic images of asymptomatic carotid artery plaques is associated with a lipid core close to the lumen or a thrombus on the plaque surface. The aim of our study was to test the hypothesis that